FOUNDRY TRADE JOURNAL
Established 1902
WITH WHICH IS INCORPORATED THE IRON AND STEEL TRADES JOURNAL

Vol. 84 Thursday, April 29, 1948 No. 1652

49, Wellington Street, London, W.C.2
'Grams: "Zacatecas, Rand, London"
'Phone: Temple Bar 3951 (Private Branch Exchange)
PUBLISHED WEEKLY: 21s. per annum (Home and Overseas)

Trouble Makers

The national interests demand increased industrial production and every effort must be made to eliminate factors acting adversely to this end. Amongst these are the "trouble makers" and their suppression and neutralisation is a matter which is concerning both employers and trade unions. This suppression is not easy because the "trouble makers" are very well organised and specially trained to perform their nefarious activities. Cases are known where a high-grade craftsman joins the staff of a works, keeps perfect time, and gives complete satisfaction. Then he leaves, but during his stay he has organised a cell of minor "trouble makers." Naturally, unless the last fact be known and appreciated, he proceeds, armed with good testimonials, further to undermine trade-union/employer relationship at the place of his next situation. "Trouble makers" are alive to the value of good testimonials, so realising that much confidential information is given over the telephone. They may enlist a comrade to ring up the last employers, using the name of an established industrial enterprise with the object of getting the "low-down" on their standing. Employers must be made to realise that the organisation behind "trouble makers" has carefully planned its attack, using extreme subtlety to achieve ends which are nationally subversive.

Our readers will be familiar with the steps which have been taken to rid the civil service of potential "trouble makers" and of the dangers to be associated with "witch hunting." The circumstances to be associated with key industries are of a similar category, and it is up to everybody in the shops, offices and laboratories to fight against this infiltration of foreign-inspired "trouble makers." As Britishers we accord to everybody the right to free speech, but not to subversive actions. Grievances should be ventilated through the proper channels and not be exploited for the benefit of alien interests.

So far as the foundry industry is concerned, there is no excuse for short-circuiting the proper channels, as but few firms are not "organised" from the trade-union angle. To-day, the shop stewards need to be constantly on their guard against individuals who strive to undermine their position. If the shop steward himself be a "trouble maker," then he should, in the interests of production, be reported at the next lodge meeting.

Whilst co-operation amongst "trouble makers" is easy, collaboration for their suppression is difficult, as no one wishes to be accused of victimisation or inadvertently to be the subject of an action at law. Where real suspicions exist, however, it is possible to receive confirmation or denial from a body possessing reliable information as to the identity of the professional "trouble makers," and it is as well to get their opinion. Many years ago, the late Lord Melchett and Mr. Turner, a prominent trade union leader, enunciated the notion that each works was like a ship and, to use a common-place, "they were all in the same boat." The position to-day is much the same, except that, through current circumstances, industry is one integrated fleet and a few well-planted "trouble makers" can quickly reduce over-all efficiency to zero. If the gap between exports and imports is to be bridged, and we can again achieve solvency, then steps must be taken at every level to remove from the "works" of production the "spanners" deposited by these well-organised "trouble makers."

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National Foundry College

The National Foundry College has opened for its first post-war session with 18 students from the United Kingdom and overseas, and is housed in the Wolverhampton and Staffordshire Joint Technical College. The next session will begin on September 27, 1948, and continue until the end of July, 1949. It is confidently expected that, by the time the next session starts, a hostel will be available for the use of students. Those interested in the course can obtain a form of application for admission, together with the prospectus and curriculum, from the Head of the College, Mr. J. Bamford, B.Sc., at the Technical College, Wulfruna Street, Wolverhampton. The Board of Governors of the College is now complete, under the chairmanship of Mr. Randall G. Hosking, C.B.E. The list below gives the members of the Board and the institutions they represent.

Chairman: Randall G. Hosking, C.B.E.

Vice-Chairman: Mr. P. H. Wilson, O.B.E. (Council of Iron Producers).

Hon. Treasurer: Mr. J. G. Pearce (British Cast Iron Research Association).

Clerk: Mr. F. Lonsdale Mills, M.C.

Professor L. Aitchison (University of Birmingham); Ald. A. A. Beach, J.P. (Wolverhampton and Staffordshire Joint Technical College); Mr. A. Bennett (Trades Union Congress); Mr. J. W. Berry (Institution of Production Engineers); Ald. B. Bilboe, J.P. (Wolverhampton and Staffordshire Joint Technical College); Mr. D. Graham Bissett (Council of Ironfoundry Associations); Mr. C. C. Booth, J.P. (Institute of British Foundrymen); Ald. J. Clark, J.P. (Wolverhampton and Staffordshire Joint Technical College); Mr. H. E. Cookson (Iron and Steel Institute); Ald. Lewis Davies, J.P. (Wolverhampton and Staffordshire Joint Technical College); Mr. Lincoln Evans, C.B.E. (General Secretary, Iron and Steel Trades' Confederation); Mr. F. V. Everard, J.P. (Institution of Mechanical Engineers); Mr. L. Fletcher (Light Metal Founders' Association); Councillor W. J. Foster (Wolverhampton Local Education Authority); Mr. J. Gardner (Trades Union Congress); Dr. E. Gregory (British Iron and Steel Research Association); Dr. J. E. Hurst, J.P. (Council of Ironfoundry Associations); Mr. W. S. Lawson (Association of Bronze and Brass Founders); Mr. A. B. Lloyd (British Steel Founders' Association); Mr. C. McCaw (West Midland Advisory Council for Further Education); Sir Archibald McKinstry (London); Mr. A. J. Murphy (British Non-Ferrous Metals Research Association); Mr. J. W. Parker Oxspring (Staffordshire Local Education Authority); and Mr. S. H. Russell (Council of Ironfoundry Associations).

Assessors: Mr. R. W. Blount, H.M.I. (Ministry of Education), and Mr. J. Ferguson, H.M.I. (Scottish Education Department).

ON MARCH 17, at the Melbourne Technical College, Mr. A. S. Beech, managing director of Foundry Equipment, Limited, Leighton Buzzard, read a paper before the Institute of Australian Foundrymen on "Mechanical Aids for the Foundry."

Forthcoming Events

(Secretaries are invited to send in notices of meetings, etc., for inclusion in this column.)

MAY 4.

The Chemical Engineering Group.

"Modern Propellants Employed in British Ordnance," by J. N. Pring, M.B.E., D.Sc., in the Apartments of the Geological Society, Burlington House, Piccadilly, London, W.1, at 5.30 p.m.

MAY 5 and 6.

Iron and Steel Institute.

Annual General Meeting in the Lecture Hall of the Royal Institution of Chartered Surveyors, 12, Great George Street, London, S.W.1, commencing at 9.45 a.m. [Detailed programme published in the JOURNAL, April 8, 1948, page 340.]

MAY 5.

Institution of Production Engineers.

Nottingham Section:—"Metal Finishing," lecture at the Victoria Station Hotel, Nottingham, at 7 p.m.

MAY 6.

Leeds Metallurgical Society

Annual General Meeting and Papers by Student Members, at 7 p.m., in the Chemistry department, the University, Leeds.

Institute of Welding

North London Branch:—Visit to Ford Motor Company, Limited, Dagenham, Essex. Party to leave Westminster Pier, London, at 11 a.m.

APRIL 23.

Institution of Production Engineers.

South Wales and Monmouthshire Section:—Works' Visit to Bristol Aeroplane Company, Filton, Bristol. Party leaves Cardiff at 10.30 a.m.

The Institute of British Foundrymen

After a Council meeting of the Institute of British Foundrymen held recently in Derby, the following information was released:—

Vice-President, 1948-49

Mr. J. J. Sheehan, B.Sc., A.R.C.Sc.I., A.R.I.C., of the Coneygre Foundry, Tipton, Staffs., has been nominated by the Council as Junior Vice-President of the Institute of British Foundrymen, for the year 1948-49.

Awards

The Council of the Institute also announced the following awards for 1948:—

The E. J. Fox Gold Medal to Mr. J. G. Pearce, M.Sc., in recognition of his services to the foundry industry during the many years he has been Director of the British Cast Iron Research Association.

The Oliver Stubbs Gold Medal to Mr. L. W. Bolton, A.M.I.Mech.E., for the outstanding services he has rendered to the Institute by his work on the Technical Council and the Council and Committees of the Institute, and as Secretary for some years and later President of the Birmingham Branch, and for the contributions which he has made to the knowledge of founding as the author of numerous papers.

The Meritorious Services Medal to Mr. C. Lashly, M.C., for the high value of his services for many years to the Institute as Honorary Secretary of the Newcastle Branch.

The presentation of these awards will be made at the Annual Meeting of the Institute to be held in London on June 9, 1948.

The Loam Moulding of Rope-Barrel Castings*

A Step-by-step account of the making of 20-ton castings

By D. Robertson

The following is an illustrated description of the methods used by the writer in the construction of four rope barrels, each weighing 12 tons 15 cwts. when finish machined, which were incorporated in 150-ton floating cranes for the Admiralty, that is, two per crane, and powered by electricity.

Dimensions of the Job

Each casting was 10 ft. 7 in. outside diameter, and 8 ft. overall height, practically enclosed, except for eight lightening holes at one end, and eight triangular cores at the other end, forming the hollowed projection on the main casting, which carried the main drive. The main drive consisted of cast-steel segments fitted and bolted round this smaller diameter, and a 6¼-in. steel journal was inserted through the two bosses to give the bearing for rotation.

The thickness of the main wall was 2½ in. before grooving for a 5½-in. dia. rope; the average thickness of the various ribs, etc., was from 1¼ in. to 1½ in. The barrel was strengthened by three internal flanges, 6 in. wide, approximately 23 in. apart, and bracketed at the two extreme flanges. Permission was granted to make the end opposite to the drive as a separate cover, convex in shape, machined and bolted in place before the final machining of the barrel (Fig. 1).

* A Paper read before the Bristol and West of England Branch of the Institute of British Foundrymen, Mr. H. E. E. Holladay, B.Sc., presiding.

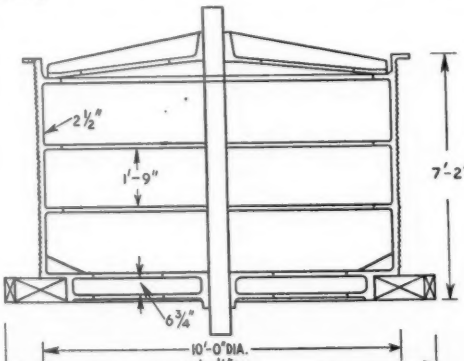

FIG. 1.—THE ROPE-BARREL CASTINGS ASSEMBLED FOR MACHINING.

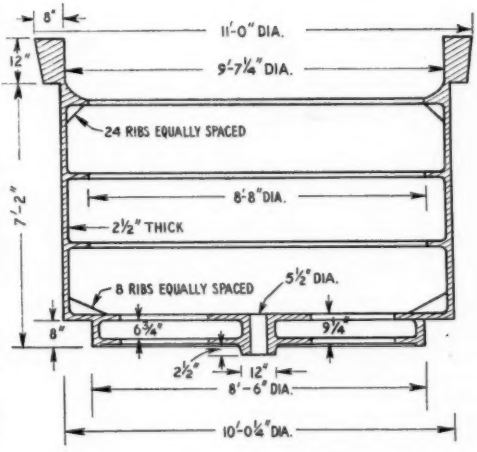

FIG. 2.—SECTION THROUGH MAIN BARREL CASTING, SHOWING FEEDING HEADS.

To ensure soundness, a feeding head was carried up from the top flange to a total height of 12 in., and ½-in. machining allowance was added around the outside diameter, ¼ in. of which was machined off at the foundry machine shop and the other ¼ in. left for the people who machined the grooves. Fig. 2 shows how the feeding head was shaped to meet the outside of the internal flange which carried the end cover; this, as well as helping to feed, also permitted any dirt or scum which may have accumulated whilst pouring, to be worked up into the head and away from any working part of the casting proper. With the feeding head and the additional machining allowances, the total weight was in the region of 20 tons.

Fig. 3 shows a view of the bottom of the barrel, including the triangular lightening cores, which were approximately 3 ft. wide by 3 ft. 6 in. long, with prints about 21 in. wide by 24 in. long, leaving a wall thickness of 1¼ in.

Fig. 4 gives a view of the top cover showing the eight triangular lightening holes, approximately 21 in. wide by 24 in. long, and the eight ribs 4 in. deep at the outside diameter of cover, rising to the level of the boss, which is 10¼ in. deep.

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Loam Moulding of Rope-Barrel Castings

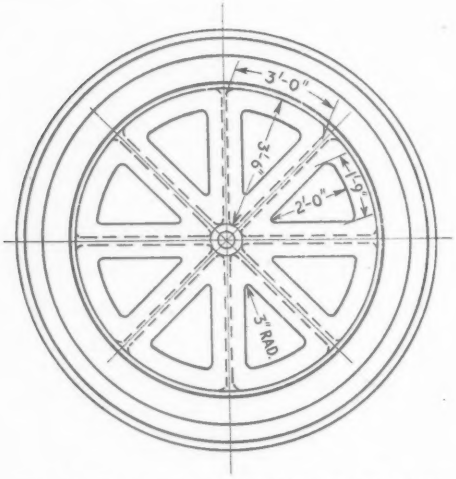


FIG. 3.—PLAN-VIEW OF THE BASE OF THE MAIN CASTING.

Moulding Tackle

Since there was no available tackle for a job of this size, new plates and binders had to be cast to the following description. A bottom plate was cast 11 ft. dia., 4½ in. thick, with prods all round, these prods being approximately 3 in. apart, 2½ in. to 3 in. wide, 1 in. thick, and 10½ in. high, as shown on the front view, Fig. 5. Eight lifting lugs were cast as shown on the drawing and served for bolting the mould together; eight 4-in. dia. holes were cast at predetermined positions, which are to be dealt with later. The weight of this bottom plate was approximately 7 tons.

The top plate was 11 ft. dia., 4½ in. thick, with a 6-ft. dia. hole, the under side prodded with finger prods to retain the loam, and fourteen 3-in. dia. holes were cast in to allow for runners and risers. Eight bolting lugs were cast on, four of which were cast off-centre to correspond with one of each of the four double lugs cast on the top binder; this is detailed later, but Fig. 6 shows the type of double lug referred to. This plate weighed approximately 5 tons.

The height of this job was worked out so that the prods on the intermediate rings would not be too long, but to maintain these at approximately 12 in. it was necessary to make six of these intermediate rings, prodded in like manner to the bottom plate, the flat or shelf of the rings being approximately 4 in. thick and about 8 in. broad, with a sharp taper at the front end near the casting, because large surfaces of metal in close proximity to the face of the mould would prevent the gases from escaping and result in a scab or cause the loam to peel from the face of the metal. These six rings weighed approximately 35 cwts. each and can be seen to better advantage in Fig. 7. The top ring or binder had four double lugs cast on, one of each pair corresponding with four lugs on the bottom plate, the other corresponding with the four lugs on the top plate which were cast off-centre.

Fig. 7 shows the method of setting and sweeping. The bottom plate was set on four stands in a pit, so that, when assembled, it would be about 4 ft. above floor level; the seat for the spindle was cast in the bottom plate by means of a standard sand core, and a spindle with fixed tails was used. The top of the spindle was supported by a 3-in. timber fixed at each side of the pit. This timber was reinforced with a mild-steel plate, drilled to suit the spindle (which was 3½-in. dia.), and fastened in the centre; this took all the whip and sag out of the strickle.

Making the Loam Mould

A round wooden boss was bedded at the bottom, and the spindle passed through this; the sweeps were set so that it was possible to have three layers of bricks under the main casting and the intermediate rings were about a finger's width from the edge of the feathered sweeps.

Eight packing pieces were placed over the holes on the bottom plate, and there was a hole through each packing piece to correspond to those in the bottom plate. The packing pieces were to take the weight of the oil-sand lightening cores and subsequently the weights of the bottom and following cores; they extended from the bottom plate to the level of the bottom of the sweep, except for the working clearance of the thickness of a moulder's trowel; this, incidentally,

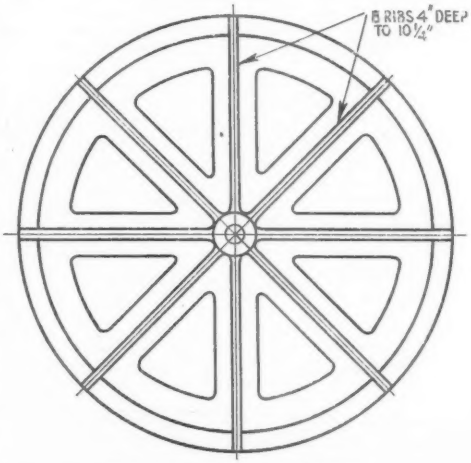


FIG. 4.—TOP COVER CASTING.

served as a check on any sag on the main sweeps. The packing pieces were cast-iron flanges connected by three ¾-in. dia. wrought-iron bars, ground to size if necessary, as shown in Fig. 11.

When the sweeps and packing pieces were set and proved correct, two courses of bricks were laid on the bottom, set roughly 1½ in. apart. As each course was laid, fine ashes or cinders were rammed between the bricks with a flat file or a similar tool, care being taken to build round the packing pieces and the wooden boss. Then a third layer of bricks and loam was laid which brought the level up to within ¼ in. of the face of the bottom sweep. The supporting timber at the top of the spindle was next removed, the first ring, well daubed with claywash, was set in position, the supporting timber replaced, and the work built up with bricks and loam to the top of this ring. This was repeated with each of the five remaining rings, and a pin 1½-in. dia. was finally set in the last ring to form a flow-off almost halfway up the head.

Drying the Mould

Since the mould could not go into a stove, but had to be dried by means of internal fires, the sweeps and spindle were removed at this stage, a bucket fire was placed inside, the top of the mould was covered with corrugated sheets to keep the heat inside, and the brickwork was thus thoroughly dried out.

When this had been achieved and the extreme heat of the mould had abated, the brickwork was well daubed with claywash and the whole job roughed up, care being taken to grease the loam well in with the fingers, so that it would have the maximum adhesion to the brickwork. A very thin slurry of the same loam was mixed up to apply the finishing coat; the moulder who was inside the mould had soft shoes on and stepped on the packing pieces as the strickle was rotated, when he then guided the sweeps out of the mould, removed the wooden boss and was himself removed by means of the crane.

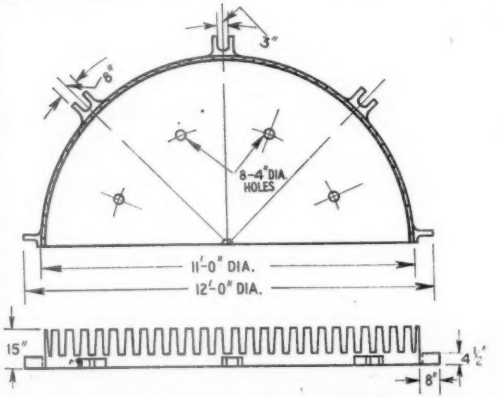


FIG. 5.—BOTTOM-PLATE OF THE MOULDING TACKLE.

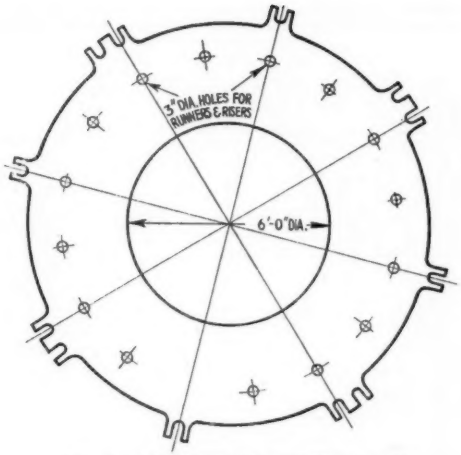


FIG. 6.—MOULDING TACKLE TOP PLATE.

A bucket fire was lowered into the mould and held suspended overnight by the crane, and the mould was completely dried off. On the following morning the mould was rubbed down with "carding"* and given a good coat of blacking; it was then ready for the assembly of the internal core, as soon as the coat of blackwash had dried with the heat from the mould. It should be pointed out at this stage that the mould was not built up all at once; building such a height and mass of green loam would most probably have resulted in the mould sagging out of shape; so the mould was built up in three stages, and other work such as making grids or sweeping cores was carried out in between times.

Core-making

The bottom and intermediate cores were swept up as shown in Fig. 8. A large machined marking-off plate was available with a centre hole for the pin. A crown plate was cast 4½ in. thick and just slightly smaller than the diameter across the internal flanges; with finger prods on the underside, and chamfered edges. This plate had a 3¼ in. "plus" hole cast in the middle and eight 4 in. dia. holes corresponding to those in the bottom plate, and was equipped with lifting loops approximately 12 in. high of 1 in. dia. round bar; and at each side of the eight holes there were also two loops roughly 6 in. high of ¾ in. dia. bar for a purpose which will be detailed later. Three rectangular columns 4 in. by 2 in. by 12 in. high were cast on the plate at predetermined positions, to take the loops of the tapered easing blocks.

* We understand that "carding" is a wire brush which has very short bristles. We give this information for those whose job it is to translate into a second language.

Loam Moulding of Rope-Barrel Castings

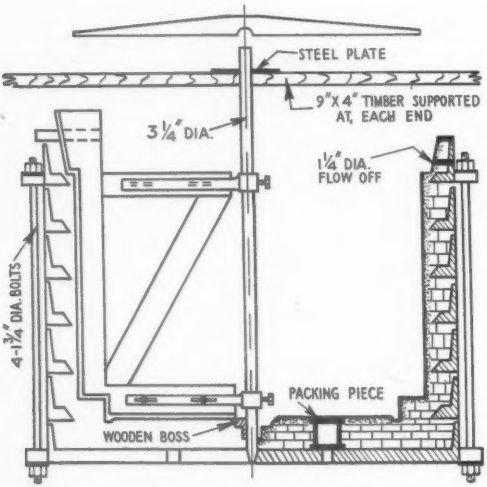


FIG. 7.—METHOD OF SETTING UP AND "SWEEPING" THE MOULD.

A centre was attached to the under side of the flat table and the centre pin placed in position. A liberal supply of sea-sand was scattered evenly over the plate and a layer of loam roughly 1½ in. thick spread over this, then the crown plate was well clay-washed on the underside and passed over the centre pin and beaten down on to the loam with a large bumper, until the packing pieces which were attached round the eight holes were riding on the machined plate. Since the crown plate was made to come inside the internal flanges it was necessary to carry about 6 in. of loam all round the plate, this was achieved by laying eight segmental grids on top of the bottom plate, with prods to carry the overhanging core and recesses to allow the bedding-in of the brackets.

The space between the prods of the grids was stuffed with soft loam and loam-cake, then the three "easing blocks" were set in position, the sweep was set as shown, to correspond to the template, and the walls of the core were struck up with a 14-in. wall; an excess of loam or loam-cake was left all round, and especially under the flanges, to allow for contraction. The core was then lifted on to the stove-bogie where preparation had been made for it to be supported on the packing pieces. Vents were made in the crown plate by casting-in pieces of coke; the crown plate weighed approximately 4 tons.

The other parts of the core were set and struck up in a similar manner, using eight segmental grids on each, and also three easing blocks. Instead of full plates, rings were used, about 8 ft. 8 in. outside diameter and 16 in. wide, weighing approximately 2 tons each, with three lifting loops on each. A 12-in. wall was built in each of the subsequent parts of the core.

Fig. 9 shows an assembly plan of the core plates and the eight segmental grids; it will be seen that these grids are set with approximately 2 in. space between each to allow for easy contraction; the method of setting the easing blocks is apparent here, the mild-steel loop fitting over the cast-iron columns, wedges being inserted as shown in Fig. 8 to prevent them from moving forward, temporary packing was also inserted between the block itself and the inside of the column, to avoid any backward sag or loss of position during the movement of the core in its green state. It should be noted how the outline of the grid is broken by little finger prods on the outside; at no time was a plain flat surface of metal in contact with loam, such faces were either prodded or criss-crossed with serrations, which helped to retain the coat of loam.

Fig. 10 shows details of the lightening cores. A simple frame corebox was used for these with loose pieces to form the top and bottom flanges. The bottom flanges of the corebox were made of metal, so that the core was rammed on a plate; the top wooden flanges withdrawn and the sides of the box then unscrewed and drawn away, leaving the metal flanges to support the core during the process of drying. A metal packing piece similar to those previously mentioned was placed inside the box and came level with the top

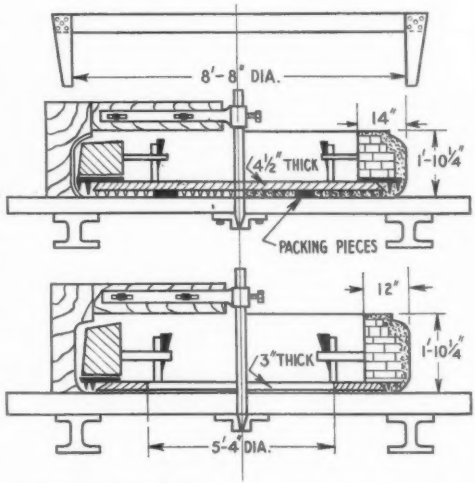


FIG. 8.—METHODS FOR MAKING BOTTOM AND INTERMEDIATE CORES. NOTE THE WEDGES LATER REMOVED FOR "EASING" THE CASTING.

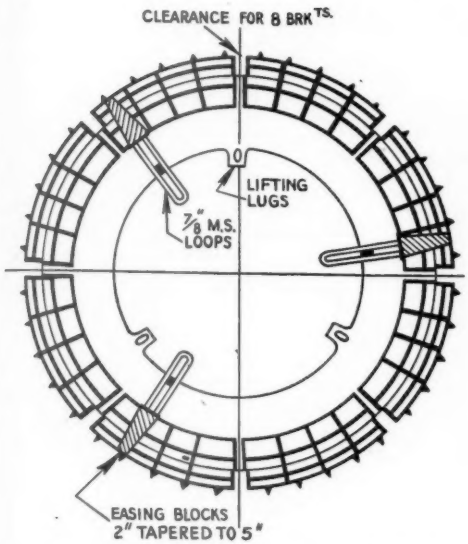


FIG. 9.—ASSEMBLY PLAN OF THE CORE PLATE AND GRIDS.

print, and was so placed that the 4 in. dia. hole in the packing piece would correspond exactly with the holes in the bottom plate. A very light grid was made as shown, to support the core, and three lifting loops were attached for handling purposes. The inside of this core was stuffed with cinders, the outside was rammed with oil-sand, and, when dried, was given a good coat of blackwash.

Fig. 11 gives details of the type of packing pieces used and a pattern of a flange was cast in open sand. Three bars were next cut to the exact total depth required, were splayed at the ends, and placed on end in the open mould before pouring; when the casting had cooled sufficiently it was cleaned off and the free ends of the rods positioned in another similar mould; by this means a fairly accurate distance piece was obtained. The easing block was a tapered casting with a wrought-iron loop cast-in to the required dimensions. All the faces of the block mould were criss-crossed with a moulder's trowel to break up the flat surface.

Assembling of Cores and Closing the Mould

Fig. 12 shows a view of the assembled mould, the various steps in closing being as follows:—First, the triangular lightening cores were set in the bottom; placing the first one in position by matching the hole in the core over one of the holes in the bottom of the mould and setting the distance of the core from the outside wall by two thickness sticks or gauges. By placing the same two thickness gauges against the side of the core already set, the next core was easily placed in position and so on, until all eight cores were correctly set.

As each core was set for position, it was removed immediately and the mark of its print was noted on the bottom of the mould, then a shallow groove was scraped about 1½ in. inside the outline of the core print and a roll of very soft clay was laid in this groove, small enough and soft enough just to squeeze level under the weight of the core; thus any irregularity between the levels of the bottom of the mould and the oil-sand core. was taken care of, as where the two did not meet, the clay roll stood proud to prevent any metal getting under the core.

The method of scraping a shallow groove before laying the clay roll is good practice because even if the core did lift a little, the clay could not be blown or washed into the mould as can sometimes happen when it is set on a flat surface. The cores had previously been tried for depth by means of a depth gauge, on which was marked the correct height of the various flanges, and the 4½ in. dia. centre core was placed in position to the same level; the hole made by the centre pin of the sweep having previously been filled up to the level of the bottom of the core print.

Before setting the centre core, the bottom of the print was cut up very loosely so that if the bottom plate touched too hard, the core would sink to the required depth and not burst. The next step was to mark where the six runners would strike on the step at the bottom of the mould, pieces of tin-plate were nailed at each spot to take the first streams of molten metal and thus avoid any tendency for the falling metal to cut the face of the mould. For the same reasons

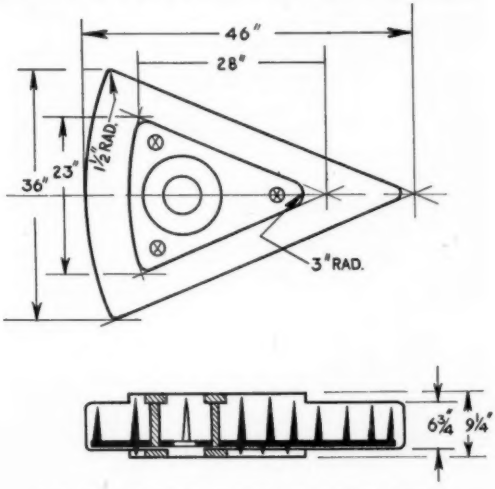


FIG. 10.—DETAILS OF THE LIGHTENING CORES.

Loam Moulding of Rope-Barrel Castings

pieces of tin-plate were also nailed on the outside of the bottom core corresponding to the positions on the step of the mould. The bottom core was next lowered into position, after rolls of clay had been laid on top of each of the eight lightening cores in the same manner as previously described.

The remaining cores were set in position in a similar manner, being checked for position by a depth-gauge, and care being taken that each one came up to the proper level. If an adjustment had to be made it was effected by increasing the rolls of clay laid between the cores. The top part was swept up in a flat top and set in position, by gauging the runners directly over the wall thickness, so that the metal would not impinge on the corner of the top flange.

Securing the Mould

The next step was to fasten the mould together securely. Eight 1¼ in. dia. bolts were passed through the holes in the bottom plate, up through the lightening cores and through the crown plate, where they were all securely fastened.

All the joints between the cores were securely greased with loam as a security against metal getting through, and each core was packed from plate to plate with 4 in. square steel bars, as shown at "A" Fig. 12. Three packing bars were used on each tier, and this packing extended from the crown plate to each successive core-plate and to the top plate, so that when the outside bolts were tightened, the complete mould was supported on metal bearings all the way through, so that there was no danger of a

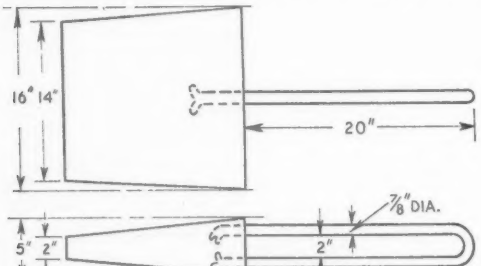


FIG. 11.—PACKING PIECE AND EASING BLOCK.

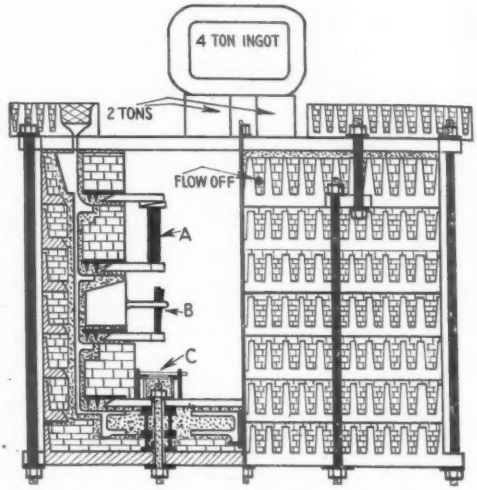


FIG. 12.—TWO VIEWS OF THE MOULD FOR BARREL CASTING ASSEMBLED READY FOR CASTING.

"crush" taking place. The mould was bolted down by four 1¼ in. dia. bolts stretching from the top plate to the bottom plate, and also four sets of two bolts for a reason which will be explained later. An extra precaution was taken; over the heads of the bolts in the crown plate, a square metal box was placed and rammed with sand. A flat plate was placed on top and a toggle bar was passed through the two loops which were cast at each side of the 4 in. dia. holes, and the whole held down with wedges. This prevented metal from escaping up the bolt holes, in the event of a strain taking place; and also avoided the risk of the bolt heads being covered with metal should any escape from between the main cores. The details can be seen in Fig. 12, "C."

(*To be concluded.*)

THE SECOND NATIONAL CONVENTION of the Italian Association of Metallurgists will be held in Milan from May 6 to 9 during the run of the Milan Industrial Fair. There is to be British, French, Belgian, and Swiss participation. A session on foundry practice is to be held. Readers desiring to participate should write to the *Associazione Italiana di Metallurgia*, Via San Paolo, 10, Milan.

THE ENGINEERING AND INDUSTRIAL EQUIPMENT (HOME AND EXPORT) EXHIBITION, the second in the "Britain's Best" series, will be held at the Old Royal Horticultural Hall, Vincent Square, London, S.W.1, from May 19 to 28, inclusive, 9.30 a.m. to 7.30 p.m. daily (excluding Sunday).

A New Range of Moulding Machines

Hydraulically-operated machines for large boxes

*By J. H. Hufton**

To meet the present shortage of skilled moulders, Stone-Wallwork, Limited, 157, Victoria Street, London, S.W.1, recently have introduced a new range of large moulding machines for boxes in the region of 10 ft. by 5 ft. by 3 ft. These machines are of both the turnover and straight pattern draw types and are for use in conjunction either with shockless jolters integral with the machines or Sandslingers.

Hydraulic Operation

Machines of a similar type have been manufactured in the past, using compressed air as the operating medium. The disadvantages of this medium are: (1) The necessity for accommodating very large operating cylinders; (2) the irregular, jerky movement always associated with compressed air, and (3) inflexibility in design, which leads to an inability to meet customers' particular box sizes. The turnover and lift mechanisms of this patented range of new moulding machines are hydraulically operated, with oil as the operating medium. They are unique in that each machine is fitted with a self-contained hydraulic unit.

When a jolter is incorporated, this is operated on the conventional pneumatic principle for a hydraulic shockless jolter has not yet been developed which compares with the ramming efficiency of the pneumatic machine at present being manufactured. The smoothness in action which characterises a hydraulic machine lends itself admirably to the foundryman's purpose. The even, yet positive, movement which is peculiar to this working medium, is of the greatest value in the important pattern-drawing operation, and it will be appreciated that this is a tremendous advantage over alternative methods.

A feature of the provision of an independent hydraulic unit is that the pressure control valve can be set to accommodate the maximum working pressure required for any particular load or any size of box, this being usually in the nature of 400 lb. per sq. in. This means that the machine will only use the minimum amount of power for each mould produced. In these days of power cuts, this is a factor not to be overlooked. However, the working pressure can be very simply increased up to 1,000 lb. per sq. in. should the user require to produce moulds of larger size.

These new machines are of the following types for use with Sandslinger machines: the type WT.200, turnover, pattern draw, and type WT.400, straight pattern draw. For use with shockless jolter machines, WT.250 turnover pattern draw, and WT.350 straight pattern draw are available.

The Turnover Machine

The WT.200 turnover draw machine is shown in Figs. 1 to 3. The operating procedure is as follows:—(1) The pattern plate is mounted on the machine table A; (2) the moulding box is located on the pattern plate and clamped either by cotters or pneumatically; (3) the Sandslinger is put into operation and the box is rammed; (4) the surplus sand is strickled off; (5) the entire table, pattern plate, mould, etc., complete with turnover units B and C is raised on the lift rams D and E; (6) the table is turned over by means of the hydraulic turnover units B and C; (7) the mould carriage F, complete with bottom board, is pushed beneath the table and the mould is lowered on the carriage by means of the rams; (8) the moulding box is unclamped and the pneumatic vibrators G are operated; (9) the table, complete with pattern plate, is raised again by means of the rams, leaving the finished mould on the carriage; (10) the mould is then removed, and (11) whilst the rams are in the raised position, the table is turned back to its normal position. The lift rams are then lowered and the machine is ready for the next cycle of operations.

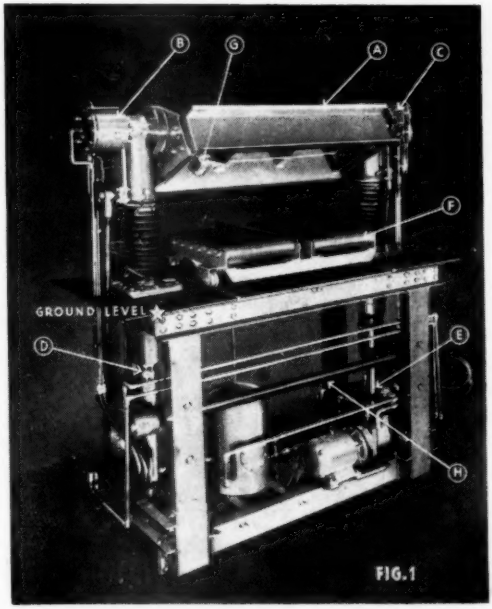


FIG. 1.—TURNOVER DRAW "HYDRA" MOULDING MACHINE FOR USE WITH SANDSLINGER.

*Technical Dept., Stone-Wallwork, Limited.

A New Range of Moulding Machines

It will be noted from the illustrations that the machine is compact and built in its own fabricated steel frame, and, as such, its installation on the site is extremely simple. Uniformity in the pattern-draw operation is provided, irrespective of uneven distribution of the load on the machine table. This is ensured by means of the compensating arms and shaft H. The two turnover units are designed on the principle of hydraulic pressure being applied to a vane moving in an annulus. The ensuing movement is transmitted to the trunnion shafts, causing them to rotate through 180 deg., the return movement being effected by the transfer of pressure to the other side of the vane and a reversal of the turning motion.

The mould carriage is constructed either with a flat top or with ball-bearing-mounted rollers. The carriage track can, of course, be extended to any desired position in the foundry, *i.e.*, to the pouring zone or to the mould conveyor leading to the pouring zone. The general practice is to use a roller-topped carriage. This allows the mould to be easily transferred to any other system of transport in the foundry, without the use of lifting tackle or crane. All controls are mounted in a compact and independent control unit shown in Fig. 3. This unit can be situated in any position convenient to the operator.

The Straight-draw Machine

The straight-draw machine is complementary to the WT.200 machine, the pair making a well-balanced mould-producing unit. The straight draw machine, briefly, consists of a flat-topped table surounded by an independent rigid frame connected to the central hydraulic ram. To make the pattern draw, pressure is applied to the ram, which raises the frame to strip the moulding box from the pattern. Point contact can be achieved on this operation by an alternative arrangement of four adjustable lift-pins mounted on the frame. Either arrangement enables the mould to be lifted simultaneously at all points, thus eliminating any necessity for mending or patching due to a faulty draw.

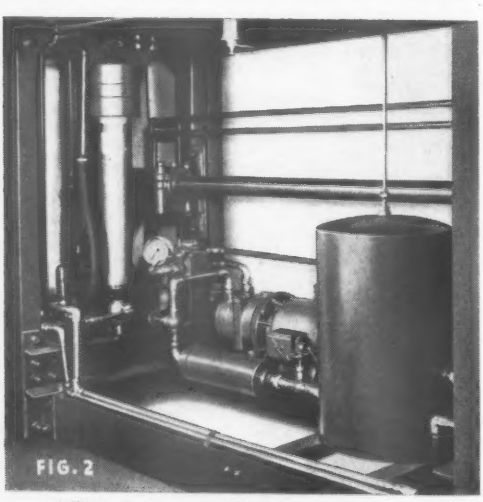


FIG. 2.—SELF-CONTAINED OIL-OPERATED HYDRAULIC UNIT.

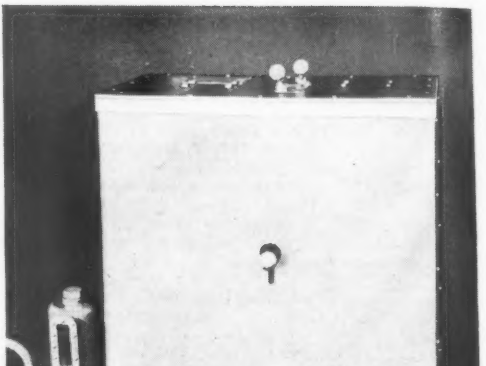


FIG. 3.—CONTROL TOWER FOR TURNOVER DRAW MACHINE.

The method of operation of the machine is extremely simple and requires the minimum of care and attention. The pattern plate is mounted on the machined flat surface of the table, the moulding box being located on pins mounted on the pattern plate. The box is then rammed by the Sandslinger and, when completed, the four lift pins engage on the underside of the box, thus making the pattern draw in the normal manner.

The WT.200 and the straight draw machines are most effective when operated as a pair. They may be arranged to use jointly the same Sandslinger, and they would in that case be so positioned that, when the drag was drawn out from the turnover machine, coring, etc., might be done before it reached the straight draw machine. The cope could next be lowered to complete the mould, which could then be transported to the

(*Concluded on Page* 425, *Col.* 2.)

Collapsible Corebox Frames

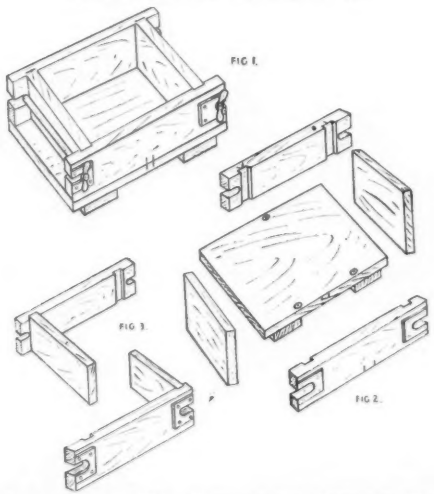
By "Checker"

Occasions arise when the sides of a core may have to be perfectly square, and although an inside shape fixed on the bottom may give adequate taper for withdrawing the core, some difficulty must be experienced with the square sides, if the corebox frame is made with ends and sides fastened to the bottom as is the normal practice. Under these circumstances, a collapsible frame can be utilised to give the correct core shape, while the reduced need for rapping the assembly will give greater accuracy to the core dimensions.

Fig. 1 gives a view of a collapsible corebox frame assembled together (interior parts omitted). The sides are recessed to take the ends, this assures correct positioning and easy assembly, providing the slots are made to be a good working fit. These ends and sides are held in position by a round bar threaded at each end, to which wing nuts are attached. To overcome the possibility of the wing nuts wearing into the wooden frame, pieces of $\frac{1}{16}$ in. to $\frac{1}{8}$ in. mild steel or other suitable metal should be screwed on the sides to act as fixed washers, as shown. Full benefit of a quick-release action is obtained by cutting slots in the frame ends to allow the fastening rods to be withdrawn from the frame after only one or two loosening turns of the wing nuts have been made.

The frame should be dowelled on to the bottom board, which completes the collapsible corebox, shown in sections before assembly in Fig. 2, each piece being

(*Continued at foot of column* 2.)



FIGS. 1 AND 2.—THE COLLAPSIBLE COREBOX FRAME ASSEMBLED AND IN ITS COMPONENT PIECES. FIG. 3.—ALTERNATIVE METHOD OF MANUFACTURE.

Correspondence

[We accept no responsibility for the statements made or the opinions expressed by our correspondents.]

HIGH STRENGTH CAST IRON

To the Editor of THE FOUNDRY TRADE JOURNAL

SIR,—I was interested to read Mr. Young's letter in your issue of April 22, and would say at once that I am fully aware of the facts he records with regard to high strength iron in the 1920's. We certainly owe a debt of gratitude to pioneers such as Lanz and Emmel, who were in their day far in advance of general practice. The essential point, however, is that the British Standards for cast iron are prepared by Committees representative of the whole foundry industry, and strength figures for iron castings are not included until they are generally attainable by the industry. I had hoped I had made this clear in my Paper by asserting that the new Specifications, each in their turn, reflected the *general standard of practice in the industry*, and thus faithfully recorded technical foundry progress. Such progress continues. To-day, individual foundries can produce castings of strengths towards 40 tons per square inch, or even higher, but the time to include such irons in our Specifications has not yet arrived. Provision for such irons in the new Specification has, however, been made, and these new grades will be included as and when they become generally available.

The relationship between bar size and section thickness of the casting is a complex one. All I would say at this stage is that the figures quoted in the latest Specification represent the considered view of the Committees of experts appointed by the technical and research authorities to study this matter. It is admitted that the figures represent something of a compromise, but they must stand until more data are available on which to base a precise relationship.

Yours, etc.,

ARTHUR B. EVEREST.

Grosvenor House,
Park Lane, W.1.

THE TWO ACCEPTED PAPERS for the "S. W. Wise Memorial Fund" awards were presented at the Bradford Technical College on April 10, to the West Riding of Yorkshire Branch of the Institute of British Foundrymen. They were "Some Factors for Immediate Consideration for the Sound Production of Medium and Heavy Castings," by G. W. Nicholls, and "Sand Patterns," by J. Timbrell, respectively. Both Papers were of a practical nature and well illustrated with lantern slides.

(*Continued from Column* 1.)

marked for position in relation to the others. When the core has been rammed up, the frame is turned over, the fastening rods are removed first, the bottom next, and then the sides and ends of the frame are withdrawn. Instead of the two sides and ends being separate, it may sometimes be possible to make the frame with pairs of sides and ends permanently fastened together as shown in Fig. 3.

The Midland Ironfounders' Association

Mr. D. Howard Wood presided over the Annual Meeting of the Association, which was held last Wednesday week at the Queen's Hotel, Birmingham. It was well supported by the members, the total of whom has now grown from 166 to 180. The company was addressed by Mr. Kenneth Marshall, the recently-appointed director of the Joint Iron Council.

Mr. Wood, in his presidential address, announced that the first centre for the intensive training of boys and youths as craftsmen in the foundry industry would be opened shortly in the Black Country. A training scheme had been adopted by the Association. It was assumed that most trade apprentices would begin work at about fifteen and the scheme recommends that at about eighteen the progress of each apprentice should be carefully reviewed. Those showing considerable promise would be earmarked for special training with a view to enabling them to take up technical or supervisory positions.

Where a foundry had a sufficient range of work and was large enough to employ a reasonable number of boys, a special apprentice shop or bay should be provided in which the boys could spend a period of from one year upwards, with a maximum of perhaps two years.

Immediate Vacancies

Mr. Wood said the number of youths required immediately for the ironfoundry industry was at least 500, and there was an annual intake capacity of a further 500. For all foundries in the area, including the non-ferrous, the immediate requirement was for 847 and the annual requirement 850.

The Council of Foundry Associations had decided to set up three training centres in the country to which youths could be sent from any foundry for an intensive course. He welcomed the establishment of the National Foundry College at Wolverhampton which aimed at producing foundry managers and executives.

Record Output Forecast

Mr. Wood forecast that British foundries would reach a record production of 3,200,000 tons of castings by the end of this year provided the present production rate was maintained. This figure would be 350,000 tons more than last year's production, which was also a record and 100,000 tons more than in 1940.

He expressed the hope that the closer control now being exercised over pig-iron and coke would result in a more even distribution. Mal-distribution, rather than shortages, had caused anxiety to many foundries.

Mr. Marshall outlined in detail the negotiations which had taken place between his Council and the Steel Board. He gave a warning that the future allocation of pig-iron was more likely to be reduced than increased because of the heavy demands of the steelmakers. The scrap position, too, was becoming extremely difficult.

Mr. T. E. Parkinson, the secretary of the Council of Ironfoundry Associations, confirmed the summing up of the situation by his statement that the industry was apparently operating at a rate of 3¼ million tons a year, whereas the official target was only 3 millions. As the over-licensing of pig-iron was of the order of one per cent., it was still something of a mystery as to where the ironfounding industry acquired all its scrap. A recent questionnaire issued by the Ministry of Supply contained questions, the answers to which were already available to the Ministry from other forms. This had been taken up and remedied. He did not believe that there was much chance of the ironfoundry industry being nationalised. The work of the Steering Committees was explained in some detail and received no adverse criticism.

MR. J. W. GARDOM dealt with a few technological questions.

Mr. D. H. Wood, who has had a very successful year of office as independent chairman, was cordially thanked for his services and unanimously re-elected. All the other officers were re-elected, but the ballot for the filling of vacancies on the Council showed close voting. It was obvious to those who have followed the work of the Midland Association that there is a distinct increase of interest by the cross-section of the membership.

B.C.I.R.A. Refresher Course

The first post-war Refresher Course, held by the British Cast Iron Research Association, took place at Ashorne Hill, near Leamington Spa, by courtesy of the British Iron and Steel Federation, from April 14-17. More than 200 representatives of member-firms, together with students of the National Foundry College and members of the Association's staff, attended the Course. Unfortunately, owing to the number of applications received, it was not possible to accommodate all those who wished to be present. The visitors were welcomed on behalf of the Council by the President of the Association, Dr. Harold Hartley, and more than 20 lectures were given by the staff and by Mr. J. W. Gardom, Mr. L. W. Bolton, and Mr. A. E. Probst. The Course was highly successful, and the Council of the Association is considering how best to arrange such courses in the future to meet the existing demand.

Pig Iron Merchants' Association

The Annual Meeting was held in Birmingham on April 22. The chairman's report and treasurer's account were approved and the following officers were elected:—As *Chairman*, Mr. Arnold Carr (Thos. W. Ward, Limited, Sheffield); as *Vice-Chairman*, Mr. H. Basil Darby (Darby & Company, Birmingham); as *Treasurer*, Mr. C. A. Parson (Parson, Limited, Birmingham). The retiring members of the Committee, Mr. Jas. Sillavan (Leigh & Sillavan, Limited), Mr. R. Sydney Smeeth (Thos. S. Smeeth) and Mr. F. Arnold Wilson (Wm. Jacks & Company, Limited), were unanimously re-elected. Mr. Carr and Mr. A. E. Bond (J. C. Abbott & Company, Limited) were re-elected representatives of the Association on the Council of the National Federation of Iron and Steel Merchants' Associations.

Association of Bronze and Brass Founders

Annual Meeting in London

The fifth annual meeting was held last Thursday at Brown's Hotel, Dover Street, London. It was the first time that the capital had been chosen as the venue and it resulted in a somewhat larger attendance. Mr. F. G. Burrell presided, and in the course of his Report to the members, said:—

President's Report

During the past year the Association has sustained an irreplaceable loss through the death of Mr. W. G. Suffield, of Dewrance & Company, Limited. He had been a member of council since the inception of the Association and had acted as one of its trustees.

In order to strengthen the Association, both numerically and financially, an effort has been made during the past year to increase the membership of the Association, and fourteen new members have been admitted. During the same period the resignations of three members have been accepted. The membership of the Association is now one hundred. A number of firms have the question of membership under consideration, and it is hoped that members will encourage non-members with whom they may be acquainted to join the Association and support its activities.

Foundry Industries Liaison Committee

An important development occurred in January of this year when, on the initiative of Mr. P. H. Wilson, O.B.E., the President of the Institute of British Foundrymen, representatives of the various national foundry associations met to consider matters of common interest and possible avenues of common action. This meeting resulted in the formation of a Liaison Committee which will meet at regular intervals and from which very beneficial results can confidently be expected. Such collaboration between the foundry associations was suggested by this Association in 1946; it is good to see that it has borne fruit.

Recruitment and Training

The Association has continued to support the work being done by the Recruitment and Training Committees in the London, Manchester and West Midlands Areas. It is hoped that the work being done, and especially the facilities being arranged for training, will attract suitable boys to enter the industry in increased numbers—a matter a vital importance. In the West Midlands Area arrangements for a Training Centre are well advanced and it is hoped it will open shortly.

The National Foundry College has re-opened at Wolverhampton for higher training in founding. The Association has a representative on the Board of Governors and has made a financial contribution to the College, and several members represented on the Council have shown their interest in the welfare and future of the industry by offering a subscription to the Association for the purpose of forming a contribution to the College. Further similar offers would be welcomed.

Conditions of Sale

The Conditions of Sale as formulated and recommended to members in April, 1945, have recently been reviewed by a Sub-Committee which has made recommendations to the Council on this subject. The conditions, which will shortly be circulated, will, it is believed, be found to have been improved to comply with present conditions, and it is hoped they will meet with general approval. The Committee and the Council have given extended consideration to the clause dealing with price ratios and delivery which have presented difficulty in that, due to the control over metal supplies and prices exercised by the Government, these factors are somewhat outside the control of founders themselves.

Metal Supplies and Prices

This question causes anxiety to all members and has been continuously before the Council. The Government is apparently wedded to the idea of bulk purchasing which leads to the present controls, and no trade association has been able to make the case for freer trading prevail. However, in the case of non-ferrous metals, firms are fortunate in that the Federation, which is the most influential body in the trade and to whom the members' views are well known and appreciated, have regular meetings with high-level representatives of the Ministry of Supply, and are thus able to keep the difficulties of the industry before the appropriate authorities.

Fuel and Power

The importance of adequate supplies of fuel for the industry was brought to the notice of the Ministry of Supply early in 1947, and it is understood that supplies have on the whole been sufficient. In a few cases of coke shortage brought to the notice of the secretaries, satisfaction has been obtained.

Information Services

Following the suggestion made at an area meeting, a résumé of matters dealt with at Council meetings has been circulated to members, the method has also been extended to cover meetings of the technical committee. It is hoped that in this way members will follow with interest the work of the Association.

These and other matters of general interest are included in the periodical issues of the Bulletin. Thanks are due to the Editor for the work he does in this respect; he would be greatly helped if members would contribute articles or comments and also submit notice of requirements or materials, plant, etc., which they may have for disposal, for publication.

Annual Meeting, Bronze & Brass Founders

A step to bring the achievements of the industry to the notice of a wider public has been taken in the formation under a Foundry Information Publicity Committee of a "News Service" for the foundry industry. Full details have been circulated and members are invited to be on the look-out for suitable news items.

Crucibles

The Federation of British Crucible Manufacturers informed us of the serious threat to crucible supplies constituted by the occupation by the War Office of land from which ball clay is obtained. The War Office's application to retain the land is being resisted strongly by the various interests concerned. The Association has added its protest and collected a considerable volume of information bearing on the subject. A public local enquiry was held on March 16 by the Ministry of Town and Country Planning, but so far no decision has been announced.

Area Meetings

A number of meetings of members in the Lancashire and Cheshire, Midlands and Yorkshire areas has been held. It is regretted that attendance, especially in the Lancashire and Cheshire area has not been as good as expected. Members' views on the value of these meetings and their suggestions for improving attendance would be appreciated.

General

The Association has continued to assist members with their shortages and difficulties and to collaborate with other bodies having similar interests. Reference should be made to the services rendered by the members of the Council, the Technical Committee, the Editor of the Bulletin, the Editor of the FOUNDRY TRADE JOURNAL, by Mr. F. Hudson, and by the representatives of the Association on various committees.

TECHNICAL REPORT

Mr. P. T. Holligan, B.Sc., the chairman of the Technical Committee, then presented his Report, of which the following is an abstract:—

Since the last Annual Meeting the Technical Committee has met four times.

B.S.I. Comprehensive Schedule of Copper Alloy Ingots and Castings.—This completely-revised schedule, in the preparation of which the Committee has collaborated, has been finally approved and recently published. It is satisfactory to note that many of the suggestions and criticisms put forward by the Association have been accepted and incorporated in the Schedule. A point which caused much difficulty was the aluminium content of gunmetals. In this connection he mentioned the happy co-operation established with the Ingot Manufacturers' Association, which supplied samples, and the British Non-ferrous Metals Research Association which carried out analyses. The object of this work was to determine at what point "white heat" appeared. The effect of white heat on pressure tightness has not yet been investigated, but the Research Association is prepared to make tests if members will send samples of gunmetal which are believed to be faulty because of the aluminium content.

Bronzes and Brasses for the Motor Industry.—The production of this list of Specifications has been delayed so that it could conform to the new B.S.I. Schedule. The Technical Committee have examined and constructively criticised the various drafts and have emphasised the desirability of conforming to British Standards. It is hoped that the booklet will meet a need, and help in the substitution of standard for special alloys.

Crucible Life.—Considerable work has been done on this subject, although it is regretted that there are as yet no concrete results to report. The crucible manufacturers insist that present-day crucibles are not inferior to those supplied before the war. An effort has therefore been made to collect evidence on the subject and reports have been provided by a number of members and also by members of the Ingot Manufacturers' Association and the Non-ferrous Metals Federation. There are, however, so many variables involved and so many changes have occurred in fuels used, types and sizes of furnaces, alloys melted, use of fluxes, quality of labour, etc., that these factors, coupled in many cases with the lack of pre-war data, render the establishment of definite conclusions extremely difficult, if not impossible. At the same time, there is a feeling among users that crucibles are not giving the results expected and there is a widespread desire for an improved performance.

Mr. Hyslop and the representatives of the Technical Committee propose to meet representatives of the crucible manufacturers with this wish in mind, and to underline the importance that the crucible manufacturers should supply their customers with what they want. The Association will not make an approach in an aggressive spirit, but rather it will say, "Tell us your difficulties and let us see if we can help."

Mechanical Properties of Castings.—Another B.S.I. publication during the last year, in the drafting of which the Technical Committee had taken a prominent part, was the "Code of Procedure in Inspection of Copper-base Alloy Sand Castings." Significant as was this development, Mr. F. Hudson pointed out, and the Committee was quick to realise, that if the new inspection methods were successfully to be applied in practice, a further knowledge of the properties of actual castings was required. The Committee has therefore set itself the task of acquiring this further knowledge and has requested member firms to take castings from their current production and to make a number of tests and report the results. Obviously, where a big casting is concerned, it is not reasonable to expect it to be cut up to provide test-bars, and a solution to this difficulty will have to be found. A total of eighteen reports on different castings has been received so far and they have provided a wealth of information which is being studied by the members of the Committee. It is hoped that many more reports will be sent in and that it will be possible to prepare a Paper on the subject in due course. This is felt to be a very fruitful field of activity; the results should be of the utmost assistance to the de-

signer in enabling him to know what properties to expect in castings, and to the founder himself they should bring greater knowledge of his product.

Synthetic-resin Core Binders.—Mr. Holligan referred to this subject which, although it had been discussed, had not yet become an activity of the Committee proper. The publication of the Garrett Report on ironfounding focused the attention of one of the members, Mr. G. L. Harbach, of Worthington-Simpson, Limited, on the problem of reducing or eliminating the nuisance of fumes caused by linseed-oil core binders: The present high cost of linseed oil gives an economic impetus to the search for alternatives. Mr. Harbach is attracted by the possibilities of using synthetic-resin core binders and is conducting experiments and putting his observations at the disposal of the Committee.

The Committee would be glad to hear from any member who may have information to impart on this subject, or who may be experimenting with non-traditional core binders, in order that investigations may be coordinated. In addition the chairman had received a personal inquiry from Mr. G. L. Bailey, Director, B.N.F.M.R.A., requesting his views on a proposal by other research associations that a three-day conference on the subject of "Core Binders" be held. This has been discussed by the Technical Committee, and a letter has been sent by the secretaries to Mr. Bailey expressing doubts as to whether sufficient new information is available to occupy a three-day conference. The interest of the A.B.B.F. in the development of new types of core binders, which offer technical, economic or hygienic advantages over the orthodox linseed-oil type, has been emphasised, and the formation of a small sub-committee, consisting of one representative from each association, has been suggested. The Committee has proposed Mr. Harbach as its representative, and he had accepted this nomination provided the duties involved are compatible with his responsibilities as a member of the Garrett Sub-committee.

Overseas Standards.—A number of draft British Overseas Standards has recently been received by the B.S.I. The Technical Committee has recommended that overseas specifications shall conform with B.S.I. specifications, thus ensuring that members' products will be acceptable in overseas markets.

Ministry of Fuel and Power.—A suggestion has been made by the Ministry that the Committee should advise and prepare bulletins on the selection and installation of new plant. Whilst the object of the Ministry was appreciated, the Committee felt that alone it was not competent to advise on this subject, collaboration with the plant manufacturers being necessary, while advice from the Ministry as to the fuel available was essential.

The Committee has promised to collaborate if the Ministry decide to set up a Committee to deal with this matter.

Technical Advice to Members.—Five technical inquiries had been dealt with in the period under review. The chairman, in conclusion, expressed his thanks to his colleagues for the help they gave to enable him to deal with these inquiries, and for their whole-hearted support in the work of the Committee.

The President was re-elected for a further year of office, as were all other officers and members of committees.

Replying to a vote of thanks, Mr. Burrell voiced the thanks of the members to the secretary, Mr. Heathcote, for the organisation of cocktail, theatre and supper parties on the evening preceding the meeting. This social event, which was graced by the presence of the ladies, was the first ever held by the Association, and it was genuinely appreciated by the participants.

A New Range of Moulding Machines

(*Continued from page* 420.)

pouring zone. All movement would thus be in one direction, which would ensure that steady flow so essential to efficient production systems.

The Shockless Jolter Turnover Machine

The turnover-draw machine, complete with shockless jolter, is a machine similar to the WT.200 illustrated, but with the addition of a pneumatic jolter. This jolter is situated in the machine frame between the tracks of the mould carriage shown in Fig. 1, the hydraulic equipment being moved to an alternative position adjacent to the machine.

The pattern plate is located by means of four large diameter guide pins in an open fabricated frame mounted between the turnover units B and C, in a similar manner to the table A, shown in Fig. 1. The open-type frame allows the table of the jolt unit to come into contact with the underside of the pattern during jolting, the pattern plate being guided during this operation by means of the four large guide pins previously mentioned. After the mould has been jolted, these same pins are locked in the frame, thus securing the pattern and mould whilst the machine is turning over. The succeeding operations are identical with those of the WT.200 machine.

The Jolter, Straight-draw Machine

The WT.350 straight-draw machine, complete with pneumatic jolter, is the complementary machine to the type WT.250 turnover draw machine, the pneumatic jolters themselves being identical. The pattern draw is effected by means of four lift pins, which are operated by twin hydraulic rams, one mounted on each side of the jolter unit. The same remarks concerning the use in pairs of the WT.200 and WT.400 machines may well be applied to the WT.250 and WT.350 machines, excepting, of course, the reference to the Sandslinger.

These machines are entirely different from the well-known range of shockless jolt squeeze moulding machines manufactured by Stone-Wallwork, Limited.

It is hoped, however, that the four machines will provide production units capable of handling the heavier types of moulds which are often required in considerable quantities. The tendency for the designing of very large items to be cast in one piece has been abandoned in favour of breaking down the job into smaller component castings. These four machines should help to fill the gap in the capacity of the foundry to produce large castings in sufficient quantities to satisfy this production-hungry world.

Pig-iron and Steel Production in Great Britain

The following particulars of pig-iron and steel production in Great Britain have been extracted from the Statistical Bulletin for March, 1948, issued by the British Iron and Steel Federation. Table I gives the production of pig-iron and ferro-alloys in February, with the number of furnaces in blast at the end of the month; Table II, production of steel ingots and castings in February, and Table III, deliveries of non-alloy and alloy finished steel. Table IV summarises steel industry activities during the six months ended February, 1948.

TABLE I.—*Weekly Average Production of Pig-iron and Blast-furnace Ferro-alloys. February*, 1948. (*Thousands of Tons.*)

District.	Furnaces in blast, 28.2.48	Hematite.	Basic.	Foundry.	Forge.	Ferro-alloys.	Total.
Derby, Leics., Notts, Northants, and Essex ..	25	—	14.3	21.9	2.3	—	38.5
Lancashire (excl. N.-W. Coast), Denbigh, Flints. and Ches. ..	6	—	6.9	—	—	1.4	8·3
Yorkshire (incl. Sheffield, excl. N.-E. Coast) ..							
Lincolnshire ..	14	—	23.4	—	—	—	23.4
North-East Coast	26	8.0	37.2	0.6	—	1.3	47.1
Scotland	9	0.7	10.9	2.7	—	—	14.3
Staffs., Shrops., Worcs. and Warwick ..	8	—	7.8	1.3	—	—	9.1
S. Wales and Monmouthshire	7	3.2	17.9	—	—	—	21.1
North-West Coast	7	14.1	—	0.2	—	0.2	14.5
Total ..	102	26.0	118.4	26.7	2.3	2.9	176.3
January, 1948 ..	102	24.2	112.6	27.1	1.2	2.7	167.8
February, 1947 ..	92	20.1	83.6	19.0	1.5	1.9	126.1

TABLE III.—*Weekly Average Deliveries of Non-alloy and Alloy Finished Steel.* (*Thousands of Tons.*)

	1947.‡ (53 weeks).	1948 (1st two months).	1947. Feb.	1948. Jan.	1948. Feb.
Non-alloy steel :—					
Heavy rails and sleepers ..	7.6	9.1	6.6	9.1	9.2
Heavy and med. plates	31.6	35.6	26.7	34.0	37.3
Other heavy products	31.8	35.8	25.6	35.0	36.6
Light rolled products (excl. wire rods and alloy steel bars) ..	49.7	55.6	39.2	53.3	58.0
Ferro-concrete bars	3.2	3.6	2.2	3.0	4.2
Cold-rolled strip ..	4.6	4.9	3.5	4.8	4.9
Bright steel bars ..	4.8	6.4	2.6	6.6	6.2
Sheets, coated and uncoated	24.3	27.2	21.1	27.1	27.2
Tin, terne and blackplate	12.1	13.8	11.6	14.0	13.7
Tubes and pipes ..	13.2	14.2	10.0	14.2	14.2
Steel wire	10.8	12.3	7.7	11.8	12.9
Tyres, wheels and axles	3.5	3.6	2.7	3.1	4.0
Forgings	5.0	5.3	3.8	5.2	5.4
Castings	3.0	3.3	2.2	3.1	3.4
Total	205.2	230.7	165.5	224.3	237.2
*Alloy steel :—**					
Plates	—	—	—	—	—
Tubes and pipes ..	0.3	0.5	0.2	0.5	0.6
Bars, sheets, strip and wire	3.7	4.4	2.6	4.3	4.4
Forgings	1.8	2.2	1.1	2.0	2.5
Castings	0.6	0.7	0.4	0.6	0.7
Total	6.4	7.8	4.3	7.4	8.2
Total U.K. production†	211.6	238.5	169.8	231.7	245.4
Less Intra-industry conversion ..	19.0	25.6	8.6	24.9	26.3
Total U.K. deliveries	192.6	212.9	161.2	206.8	219.1
Add Deliveries of imported finished steel	2.2	1.9	—	1.5	2.1
Total deliveries of finished steel ..	194.8	214.8	161.2	208.3	221.2

† Includes finished steel made from imported ingots and semi-finished steel. * Excludes high-speed steel. ‡ Revised.

TABLE II.—*Weekly Average Production of Steel Ingots and Castings in February*, 1948. (*Thousands of Tons.*)

District.	Open-hearth. Acid.	Open-hearth. Basic.	Bessemer.	Electric.	All other.	Total. Ingots.	Total. Castings.	Total ingots and castings.
Derby, Leics., Notts., Northants, and Essex ..	—	—	(Basic) 9.0	1.3	0.2	10.0	0.5	10.5
Lancs. (excl. N.-W. Coast), Denbigh, Flints. and Ches. .. .. Yorkshire (excl. N.-E. Coast and Sheffield)	1.7	22.7	—	0.5	0.4	24.4	0.9	25.3
Lincolnshire	—	29.4	—	—	0.1	29.4	0.1	29.5
North-East Coast	2.0	54.7	—	0.8	0.4	56.4	1.5	57.9
Scotland	4.9	37.3	—	1.5	0.7	42.7	1.7	44.4
Staffs., Shrops., Worcs. and Warwick	—	13.8	—	0.6	0.8	13.9	1.3	15.2
S. Wales and Monmouthshire	8.6	46.0	(Basic) 4.2	0.9	0.1	59.5	0.3	59.8
Sheffield (incl. small tonnage in Manchester) ..	9.6	22.5	—	7.3	0.7	38.3	1.8	40.1
North-West Coast	0.3	2.1	(Acid) 4.2	—	0.1	6.6	0.1	6.7
Total	27.1	228.5	17.4	12.9	3.5	281.2	8.2	289.4
January, 1948	25.9	219.0	19.2	13.0	3.5	272.7	7.9	280.6
February, 1947	20.5	161.9	14.0	7.4	2.4	200.4	5.8	206.2

(*Continued at foot of facing page.*)

Iron and Steel Industry Schemes

Increasing Output of Crude Steel and Foundry Iron

When Col. J. R. H. Hutchison asked the Minister of Supply in the House of Commons whether the plans submitted by the British Iron and Steel Federation and the Joint Iron Council for increased production of crude steel and foundry iron had been approved, and whether he would make a statement, Mr. G. R. Strauss said he would circulate a list of the major schemes, already finally approved, which would contribute to the production of crude steel and foundry iron. Other schemes were still under consideration, but he could give no estimate of when approval would be given.

Following is the list of schemes approved in detail:—

STEEL COMPANY OF WALES, LIMITED, Margam, installation of ore-unloading plant. Additions to coke ovens. Ore-preparation plant and services. Rebuilding of two blast furnaces and new melting shop.

RICHARD THOMAS & BALDWINS, LIMITED, Ebbw Vale, new coke-oven battery. Additional open-hearth steelmaking furnace.

DORMAN, LONG & COMPANY, LIMITED, Middlesbrough, ore-unloading, crushing, screening and sintering plant on Tees-side. Two new blast furnaces at Cleveland to replace obsolescent units. New steelmaking plant at Lackenby.

CONSETT IRON COMPANY, LIMITED, Consett, new coke-oven battery. Provision of two modern blast furnaces to replace obsolescent units.

SKINNINGROVE IRON COMPANY, LIMITED, Saltburn, replacement of blast furnace by one modern unit. Reorganisation of steelmaking plant.

COLVILLES, LIMITED, Clyde Ironworks, additional coke ovens. Provision of third blast furnace; Clydebridge, replacement of steelmaking furnaces; Dalzell, conversion of furnaces to oil firing.

STEWARTS AND LLOYDS, LIMITED, Clydesdale, reconstruction of melting shop.

UNITED STEEL COMPANIES, LIMITED, Treeton, replacement of coke-oven battery.

JOHN BAKER & BESSEMER, LIMITED, Rotherham, installation of new open-hearth steelmaking furnace.

PARK GATE IRON & STEEL COMPANY, LIMITED, Rotherham, mechanisation of equipment for charging blast furnaces.

JOHN SUMMERS & SONS, LIMITED, Shotton, erection of coke ovens and blast furnace. New melting shop.

ROUND OAK STEEL WORKS, LIMITED, Brierley Hill, new melting shop.

SHEEPBRIDGE COAL & IRON COMPANY, LIMITED, Chesterfield, rebuilding of two blast furnaces. Installation of ore-crushing, screening and sintering plant and gas-cleaning plant.

STEWARTS AND LLOYDS, LIMITED, Corby, provision of ore-preparation plant. Increase in coke-oven capacity. New open-hearth melting shop.

UNITED STEEL COMPANIES, LIMITED, Scunthorpe, new coke-oven battery. Erection of two new blast furnaces to replace obsolescent units. New melting shop.

JOHN LYSAGHT, LIMITED, Scunthorpe Works, Scunthorpe, new coke-oven battery. Provision of ore-crushing plant and services. Modernisation of existing blast furnace and erection of modern blast furnace to replace obsolescent unit. Rebuilding and enlargement of steelmaking furnaces.

RICHARD THOMAS & BALDWINS, LIMITED, Scunthorpe, new blast furnace to replace two obsolete units. Provision of ore-handling plant and pig-casting machines. Various other improvements.

Replying to Mr. Erroll, the Minister of Supply said that 526 schemes had been examined and passed by the Iron and Steel Board, 69 were under examination, and there was no scheme awaiting examination. It was expected that nine major schemes would be submitted during the rest of 1948, but the number of minor schemes could not be estimated.

Contracts Open

The dates given are the latest on which tenders will be accepted. The address is that from which forms of tender may be obtained.

Marlborough and Ramsbury, May 14—Construction of approx. 5,800 yds. of 7-in. and 9-in. stoneware and spun-iron pipe sewers, etc., for the Rural District Council. John Taylor & Sons, engineers, Artillery House, Westminster, London, S.W.1. (Fee £5, returnable.)

Yeovil, May 19—Iron gates and fencing, for the Borough Council. The Borough Surveyor, Municipal Offices, Yeovil.

PIG-IRON AND STEEL PRODUCTION IN GREAT BRITAIN (*Continued from previous page.*)

TABLE IV.—*General Summary of Pig-iron and Steel Production.* (*Weekly Average in Thousands of Tons.*)

Period.	Iron-ore output.	Imported ore consumed.	Coke receipts by blast-furnace owners.	Output of pig-iron and ferro-alloys.	Scrap used in steel-making.	Steel (incl. alloy).			Steel stocks.†
						Imports.	Output of ingots and castings.	Deliveries of finished steel.	
1938	228.1	89.2	—	130.0	117.9	16.2	200.0	—	—
1946	234.1	115.4	169.2	149.3	147.0	8.3	244.1	191.6	1,223.9
1947 (53 weeks) ..	209.2	129.9	165.1	146.9	145.2	8.0	240.1	194.8‡	1,067.5
1947 September ..	229.2	129.6	162.7	150.1	161.5	8.0	266.1	204.8	800.4
October* ..	226.3	144.5	174.6	160.6	166.4	5.1	275.3	209.7	782.0
November ..	225.0	153.5	185.6	165.9	164.2	8.3	272.6	214.1	789.2
December* ..	223.6	149.2	188.2	164.6	144.9	5.8	243.2	196.2	775.0
1948 January ..	238.9	153.7	196.1‡	167.8	168.8	4.3	280.6	208.3	796.7
February ..	246.0	164.1	198.0	176.3	173.7	4.5	289.4	221.2	777.0

* Five weeks. † Stocks at the beginning of the years and months shown. ‡ Revised.

Imports and Exports of Iron and Steel

The following tables, based on Board of Trade returns, give figures of imports and exports of iron and steel in March, and the first three months of 1948. Figures for the corresponding period of 1938 are given for purposes of comparison.

Total Exports of Iron and Steel.

Destination.	March, 1948.	Three months ended March.	One-quarter of 1938.
	Tons.	Tons.	Tons.
Eire	6,891	17,956	13,930
Channel Islands	798	2,314	1,854
Gibraltar	105	967	221
Malta and Gozo	192	906	576
Cyprus	269	992	414
Palestine	1,080	6,688	2,018
British West Africa	3,182	11,790	12,436
Union of South Africa	10,012	35,849	57,772
Northern Rhodesia	999	1,242	5,144
Southern Rhodesia	2,195	3,305	9,053
British East Africa	5,688	16,598	6,483
Bahrein, Koweit, Qatar and Trucial Oman	5,358	9,327	*
India, Pakistan, etc.	4,351	15,150	39,670
British Malaya	3,109	6,055	16,646
Ceylon	660	2,527	6,508
North Borneo	549	2,495	29
Hong Kong	3,477	6,136	5,899
Australia	7,226	16,534	42,726
New Zealand	5,618	17,091	32,971
Canada	3,029	4,379	21,352
British West Indies	5,121	8,298	11,063
British Guiana	601	890	749
Anglo-Egyptian Sudan	1,019	2,727	2,073
Other British countries	1,434	3,368	3,496
Russia	3,671	3,964	1,087
Finland	3,328	16,200	4,402
Sweden	8,896	25,916	2,994
Norway	4,446	12,640	5,068
Iceland	238	885	165
Denmark	6,221	19,271	21,814
Poland	129	196	622
Netherlands	7,496	21,727	12,890
Belgium	772	3,395	5,081
France	613	3,277	3,347
Switzerland	919	4,205	695
Portugal	4,276	9,618	1,928
Spain	897	1,751	1,941
Italy	102	617	1,285
Hungary	5	39	8
Czechoslovakia	8	107	579
Greece	204	937	438
Turkey	1,198	3,539	3,439
Dutch East Indies	1,551	6,208	6,827
Dutch West India Islands	529	1,796	616
Belgian Congo	158	290	76
Algeria	193	243	13
Portuguese East Africa	238	772	3,555
Syria	69	198	651
Lebanon	264	1,077	
Egypt	3,751	12,778	8,602
Iraq	5,153	10,641	6,435
Iran	11,660	26,458	27,595
Burma	1,795	8,705	4,628
Siam (Thailand)	302	731	1,499
China	1,865	8,478	5,628
U.S.A.	213	607	547
Cuba	199	622	181
Colombia	597	2,120	956
Venezuela	4,636	14,914	1,169
Ecuador	856	1,081	398
Peru	386	1,136	758
Chile	684	2,155	1,573
Brazil	280	3,657	4,248
Uruguay	456	2,323	1,897
Argentine	8,608	19,944	19,839
Other foreign countries	2,106	8,058	20,412
Total	162,931	456,860	478,969

* Included in "Other British countries" and "Other foreign

Total Imports of Iron and Steel.

From	March, 1948.	Three months ended March.	One-quarter of 1938.
	Tons.	Tons.	Tons.
Australia	275	8,541	9
Canada	6,193	14,975	29,344
Other British countries	105	334	40,308
Sweden	1,549	3,969	22,449
Norway	2,098	6,420	8,444
Germany	5	257	24,000
Belgium	10,621	19,520	68,420
Luxemburg	632	1,428	14,650
U.S.A.	16,032	40,165	50,173
Other foreign countries	1,725	4,271	78,277
Total	39,235	99,880	336,068
Iron ore and concentrates—			
Manganiferous	—	—	15,571
Other sorts	685,080	1,947,794	1,275,468
Iron and steel, scrap and waste, fit only for the recovery of metal	23,099	117,140	158,051

Exports of Iron and Steel by Products.

Product.	March, 1948.	Three months ended March.	One-quarter of 1938.
	Tons.	Tons.	Tons.
Pig-iron	125	158	23,485
Ferro-alloys, etc.—			
Ferro-tungsten	18	256	129
Spiegeleisen, ferro-manganese	23	2,220	1,299
All other descriptions*	50	170	262
Ingots, blooms, billets and slabs	489	1,120	2,436
Iron bars and rods	462	1,119	799
Sheet and tinplate bars, wire rods	183	1,035	3,890
Bright-steel bars	1,912	6,243	1,647
Other steel bars and rods	8,418	28,645	25,503
Special steel	1,445	4,969	1,233
Angles, shapes and sections	6,745	21,558	16,718
Castings and forgings	637	1,705	405
Girders, beams, joists and pillars	2,246	5,684	8,368
Hoop and strip	3,108	9,293	9,344
Plates ¼ in. thick and over	12,231	29,911	32,742
Black plates	5,654	16,174	3,635
Black sheets	2,108	6,467	15,878
Galvanised sheets	6,076	15,929	36,734
Tinplates	17,266	46,217	79,830
Tinned sheets	307	1,171	353
Terneplates	—	33	1,081
Decorated tinplates	57	231	1,092
Other coated plates	321	860	56
Cast-iron pipes, up to 6-in. dia.	6,116	16,602	12,232
Do., over 6-in. dia.	3,281	9,850	10,741
Wrought-iron tubes	25,513	72,199	54,993
Radiators and central-heating boilers	234	890	1,007
Railway material	19,204	40,234	39,539
Wire	3,747	9,650	13,796
Cable and rope	2,461	6,506	4,100
Netting, fencing and mesh	1,410	4,549	2,354
Other wire manufactures	614	1,717	918
Nails, tacks, etc.	444	1,584	952
Rivets and washers	687	2,014	2,134
Wood screws	491	1,440	628
Bolts, nuts and metal screws	1,785	5,119	4,393
Stoves, grates, etc. (excl. gas)	1,215	3,055	1,752
Do., gas	240	770	536
Sanitary cisterns	118	348	703
Fencing material	542	945	1,283
Anchors, etc.	882	2,219	1,584
Chains, etc.	854	2,227	1,573
Springs	414	1,278	983
Hollow-ware	5,718	19,041	2,676
All other manufactures	17,080	53,455	53,185
Total	162,931	456,860	478,969

* The figures for 1938 are not completely comparable with those for subsequent years.

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News in Brief

THE NAME OF THE Fortis Engineering Company, Limited, Coventry, has been changed to Ball & Brown, Limited.

CARMUIRS IRON COMPANY, LIMITED, Falkirk, is to replace and reconstruct part of its premises as a moulding shop at an estimated cost of £6,000.

INSCRIBED GOLD WATCHES have been presented to four men employed for 60 years in the Waverley Iron Works, Coatbridge, of Bairds & Scottish Steel, Limited.

THE ARGENTINE GOVERNMENT has concluded a licence agreement with Rolls-Royce, Limited, for the manufacture of Derwent gas-turbine aircraft engines at the Government factory in Cordoba.

GEEVOR TIN MINES, LIMITED, has announced that its contract with the Ministry of Supply terminated last week, and the board has reverted to its former practice of selling the company's tin concentrates direct to the smelter, on the basis of the ruling price.

UNDER THE TERMS of an agreement which William Doxford & Sons, Limited, Sunderland, has signed with the Australian Government, Doxford opposed-piston oil engines will be manufactured under licence in Government-owned engineering establishments in Australia.

THE ANNUAL REPORT for 1947 of Hadfields, Limited, Sheffield, states that the development and modernisation schemes referred to in the previous report have not advanced as rapidly as was expected. Some progress has, however, been made and it is anticipated that 1948 will see some of the projects well under way.

GEORGE COHEN, SONS & COMPANY, LIMITED, recently launched a 20-ton boiler from an island into the River Lea near Waltham Abbey, Essex. It was then floated downstream, passing through two locks, to a place on the bank where it could conveniently be loaded on to a lorry. The boiler, 28 ft. long, was part of surplus equipment from a Government factory.

JOHN MILES & PARTNERS (LONDON), LIMITED, consulting engineers, and the Open Hearth Combustion Company, Chicago, have completed their contract for the supply of the designs and detailed drawings for the open-hearth steel furnaces at the new Abbey Works of the Steel Company of Wales, Limited. The two companies are carrying out the designs for the reconstruction of 11 existing furnaces at Margam and Port Talbot. The first reconstructed furnace is already in operation.

IN A STATEMENT accompanying the annual report, Mr. W. E. Gibbons, chairman of Gibbons (Dudley), Limited, manufacturers of gas retorts, etc., points out that the directors, who for many years have adopted the policy of putting the greater part of the profits earned back into the business for its future development, feel that it is particularly hard that those returned profits have to bear profits tax at 10 per cent. as well as income tax, and that this form of taxation on works development must handicap them in future when competing overseas.

Company News

(Figures for previous year in brackets.)

Lake & Elliot—Interim dividend of 5% (same).

Textile Machinery Makers—Dividend of 6% (same).

Cochran & Company Annan—Interim dividend of 11½% (same).

Stewarts and Lloyds—Dividend of 12½% on the liaison deferred shares (same).

John G. Kincaid & Company—Net profit for 1947, £45,200 (£56,767); to dividend equalisation reserve, £10,000 (£20,000); final dividend of 9½%, making 12½% (same); forward, £117,221 (£115,725).

Newey & Tayler—Net profit for 1947, after tax, etc., £13,213 (£24,312); final dividend of 7½%, making 10% (same); cash distribution paid out of capital profits, nil (£9,101); forward, £23,132 (£19,819).

Manganese Bronze & Brass Company—Profit for 1947, after depreciation, etc., £173,277 (£127,977); to taxation, £78,659 (£44,000); final dividend of 20% (22½%), making 30% (same); forward, £45,407 (£34,766).

Newton Chambers & Company—Final dividend of 10% (same), making 15% (same and bonus of 10%). Last month shareholders received a cash bonus from net capital appreciation on shares sold prior to 1943, representing 9.855% of the nominal value of shares held.

Alfred Herbert—Net profit for the year ended October 31, 1947, after tax, etc., £532,685 (£362,741); realised profit on investments, £9,297; final dividend of 10%, making 20%, tax free (same, including special capital dividend of 9%); to general reserve, £2,717,300 (nil); forward, £1,005,704 (£3,318,943).

Sanbra—Trading profit and sundry income for 1947, £324,200 (£154,285); to tax, £160,000 (£92,000); final dividend of 12½% (same), making 20% (17½%); general reserve, £50,000 (£10,000); stock metal reserve, £45,000 (nil); past service pensions, £8,000 (nil); additional tax reserve, nil (£11,000); forward, £15,311 (£11,000).

Glynwed Tubes—Dividend received for 1947:—Glynn Bros., £82,503 (£66,002), Wednesbury Tube Company, £235,000 (£55,000); income tax deducted from dividends paid, £45,000 (£28,125); interest and fees, £63 (£58); to dividends, £100,000 (£62,500); tax on bank interest, £42 (£50); tax on dividends received, £142,876 (£54,451); expenses, £863 (£833); final dividend of 12½%, making 25% (20%); forward, £160,657 (£41,873).

Penarth Pontoon, Slipway & Ship-repairing Company—Trading profit for 1947, £35.564 (£30,090); other income, £402 (£496); to directors' fees, £800 (same); bank charges, £150 (£400); debenture interest, £1,389 (£1,510); redemption of debentures, nil (£2,750); depreciation, £2,500 (£2,000); taxation, £17,700 (£14,900); net profit, £13,426 (£8,226); to general reserve, £8,000 (£2,500); dividend of 20% (same); forward, £911 (£1,084).

FURNACE LINING ECONOMY BEGINS

That G.R. products are widely used because they can be depended upon to provide strong, stable and lasting furnace structures and linings, is due to the foresight and the exceptional care taken in manufacture, development and research. Whether Basic, Silica, Fireclay or any other type of refractory material, the G.R. range is so wide that the correct choice is always possible. Each type is designed to meet specific furnace requirements; manufacturing processes employing the latest in plant and equipment are developed to maintain uniform quality at standards which G.R. research maintains at the highest level of efficiency. These activities are all directed by a comprehensive practical knowledge of furnace conditions. That is why for the finest refractories and sound technical assistance it always pays to consult G.R.

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Raw Material Markets

Iron and Steel

Supplies of foundry coke, largely from the Durham and South Wales areas, are up to allocated tonnages and, after the end of this month, increased quantities should become available. There is every need for additional pig-iron supplies, as most foundries are short, the scarcity being particularly pronounced in high-phosphorus pig-iron. Light foundries have plenty of work in hand, and could easily secure additional business if the requisite raw materials were available. With regard to the general engineering and jobbing foundries, supplies of pig-iron are not quite so difficult due to the possibility of alternatives. In the main, low- and medium-phosphorus pig-iron are being used, together with quite considerable quantities of hematite and refined pig. Both cast-iron and steel scrap are in short supply. Regular deliveries of limestone, ganister, and firebricks are being made and ferro-alloys are also in fairly good supply for the speciality foundries.

Every ton of semis produced in this country is urgently wanted. Re-rollers have been for a long time largely dependent on the semis produced in the United Kingdom, as shipments from abroad have been very small. Arrangements have been made for limited tonnages of Belgian and French semis, but, until further shipments are arranged, the situation is not likely to improve. Heavy billets, blooms and wide slabs are coming through more steadily, and this is helping the re-rollers of medium and large sizes. Re-rollers have plenty of business on hand for essential home needs and some of them also have quotas for export to the Colonies and Scandinavian countries. Because of the shortage of prime billets, supplies of defective billets, sheet bars, crops, and, in fact, any types of raw material which can be re-rolled into bars or light sections, are eagerly sought.

Heavy pressure is still being exerted on all steelworks for supplies of plates, joists and sections. Similarly, there is no easing of the situation concerning sheets and strip; users are clamouring for supplies and much of the output is wanted for urgent and essential industries. All rail and wire mills are booked for a long time ahead; indeed, with regard to rails, it is very difficult to get additional business placed. This position also obtains at the strip mills and with makers of bright-drawn steel. Both steelworks and re-rollers, in addition to present needs of home trades, have considerable rail export orders on hand. Special steels are in wide request, and in recent months there has been a bigger demand for straight carbon steels, particularly for the agricultural-implement industry.

Non-ferrous Metals

The meeting of the Tin Study Group has been concluded. Those who had been hoping for more freedom of trading in this metal will be disappointed, for in the course of the deliberations it emerged that the revised figures of production for the three years 1948-50 are smaller than those estimated at the 1947 meeting. In fact, it now appears that output will not reach the usage level until 1950, when there is an assessment of production at 200,000 tons and of consumption at 190,000 tons. This figure of 190,000 tons is the amount estimated for usage during 1948, 1949 and 1950 were all restrictions on the use of the metal lifted. Stockpiling is not mentioned in the conclusions reached by the Group. Inter-Governmental co-operation is to be recommended, but in many circles it is wondered how much longer this somewhat unreal state of affairs can continue. It was reported recently that the Bolivian interests were pressing for a higher price or, alternatively, for the re-establishment of a free market. It is doubtful whether these elaborate arrangements to look after the tin position would long survive the approach of equilibrium between production and consumption.

Last week saw the publication of the usual monthly copper statistics by the British Non-ferrous Metals Federation. In total, the usage for March amounted to 47,090 tons, which is 1,370 tons up on February. Practically the whole of this increase was in scrap, for virgin copper comprised 28,948 tons, only 9 tons up on the previous month. The figure for copper and alloy scrap (copper content) in March was 18,142 tons, and in February, 16,781 tons. For the first three months of this year the United Kingdom consumed 94,704 tons of virgin copper and 48,907 tons of scrap, the comparative figures for last year being 75,354 tons and 44,128 tons. We have, therefore, an average of 31,568 tons per month up to the end of March this year, but, as the months progress, with consumption held down to 30,000 tons, this average figure will decrease. It must be admitted that the March total of 18,142 tons for scrap seems high against the background of business in secondary metals so far this year, but it is, of course, hardly possible to relate the two as business may have been done last year for delivery in March. In any case, it would appear that the rationing scheme in copper is working smoothly.

MUSGRAVE & COMPANY, LIMITED, heating and ventilating engineers, of Belfast, has opened branch offices at 89A, Clayton Street, Newcastle-upon-Tyne. Mr. W. J. Adams has been appointed manager.

FOLLOWING CLOSELY on their acquisition of the £300,000 share capital of Crossley Motors, Limited, the directors of the Associated Equipment Company, Limited, now propose purchasing the £50,000 of ordinary shares of the Maudslay Motor Company, Limited. In exchange for every four of their 5s. shares, holders are offered £1 of A.E.C. ordinary stock, terms similar to those for Crossley Motors. The board of the Maudslay Motor Company recommends the offer on the grounds of the technical advantages which would accrue to the company and the wider market for the shares which there would be. The separate identity of the Maudslay Motor Company would be preserved, while Mr. O. D. Smith, its chairman, would join the A.E.C. board.